Most authors recommend a quick freeze and slow thaw method of tissue destruction. Slow cooling produces extracellular ice, but this is not as damaging as rapid cooling that produces intracellular ice formation. With slow thawing, an increased concentration of electrolytes and recrystallization occurs, which is also damaging to cells. Thus the rate of rewarming, or thaw, should proceed slowly [1].
Cryoblasting successfully achieves the quick freeze and slow thaw desired for destruction of thicker lesions. To our current knowledge, there is only one previous report related to cryoblast for verrucae [2]. Callaway *et al.* showed that cryoblast can achieve a deeper ice ball compared with classic cryosurgery on a gelatin model [2]. Cryoblast is a technique which has a short duration of freeze giving pain relief and no difference of complications compared with classical methods. In the present study, we showed that cryoblast is significantly more effective than cryo-spray. Although we expected more scarring with cryoblasting, there was no difference from the scarring resulting from cryo-spray, as in the previous study [2].
Cryoblast could be an alternative method in the treatment of plantar verrucae. Controlled trials comparing cryoblast to cryospray are recommended for further confirmation. ■

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Genital vitiligo-like depigmentation following use of imiquimod 5% cream

Imiquimod 5% cream is an immune response modifier, currently approved for use in external genital and perianal warts, superficial basal cell carcinoma and actinic keratoses. The anti-viral and anti-tumoral activity seems to be dependent on focal activation of the immune system with induction, synthesis and release of cytokines, such as interferon-alpha, interleukin-12 and tumor necrosis factor alpha [1]. This intense immune reaction is responsible for local side-effects, such as erythema, edema, erosions and crusting. Post-inflammatory pigmentary change has already been described as a possible complication, which is usually reversible. The induction of vitiligo-like depigmentation has been reported very rarely, but assumes importance due to the expanding uses of this medication [2-4].
We report a 26-year-old Caucasian male, with condyloma accuminata of the penis, treated initially with cryotherapy with only mild improvement. Imiquimod 5% cream (three times weekly) was used without significant side effects, except for moderate erythema and edema. After 12 weeks of continuous use, there was a complete resolution of lesions, without any pigmentary change. New lesions appeared and imiquimod was again used for 16 weeks, with a moderate to severe inflammatory reaction. Areas of vitiligo-like depigmentation developed in the areas treated with imiquimod, and have remained stable for 18 months, much to the distress of the patient *(figure 1)*. There was no previous history of vitiligo or other depigmentated areas elsewhere and no changes in thyroid function or autoimmunity were detected. The patient refused a biopsy in the affected area.

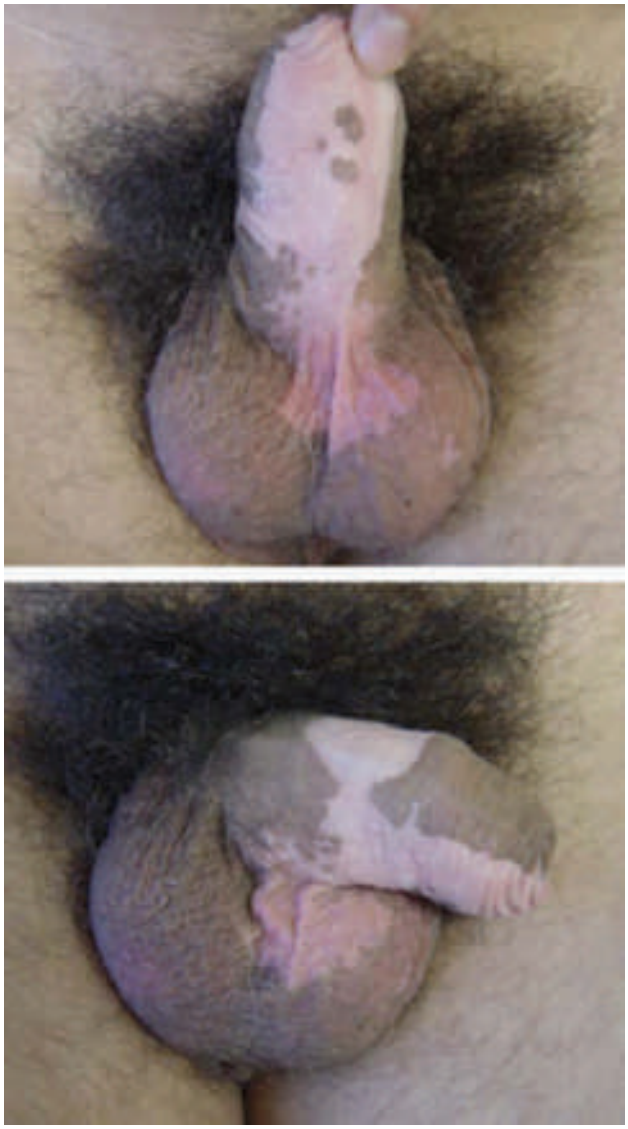

Figure 1. Vitiligo-like depigmentation after imiquimod for genital warts, stable for 18 months.

The pathogenesis of vitiligo is still a matter of debate, with some evidence suggesting a T-cell mediated autoimmune reaction against melanocytes. The induction of vitiligo after skin trauma (Koebner effect) is not uncommon, but usually occurs in patients with a previous history of the disease. Theoretically, the ability of imiquimod to induce an immune response against infections and tumours may also be responsible for creating an environment in which the immune system would respond against melanocytic antigens [5]. The activation of epidermal cytokines (IL-6 and IL-8) and interferon-alpha induced by imiquimod might have played a pathogenic role in the induction of vitiligo in our patient, through local activation of a cytotoxic T-cell response [6].
In conclusion, the depigmentation areas may represent the local induction of vitiligo, as a consequence of the immunological reaction triggered by imiquimod. This report has

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a long follow-up period (18 months), suggesting that in some patients the depigmentation might be long-lasting or even permanent. Although uncommon, physicians must be aware of this potential side-effect, especially when using the product on visible areas. ■

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Investigation for the leptin 1 and LEP G2548A gene polymorphism in psoriasis

Since leptin is thought to play a role in immune functions [1] and an increased risk ofobesity and operation of a Th1 type of cell mediated immune response have been documented in psoriasis; we aimed to investigate serum leptin levels and the effects of G2548A leptin gene polymorphism on serum leptin levels in patients with psoriasis.

Materials and methods

Sixty-five patients with psoriasis and 64 healthy volunteers were included in this study. Family history of psoriasis, age of onset (before and after 40 years of age), duration of the disease, type of psoriasis (plaque psoriasis versus others), psoriasis area severity index (PASI), and activity of the disease (stable and unstable) were recorded.

Leptin was measured by the ELISA method and G2548A polymorphism of the *LEP* gene was analyzed by PCR amplification. Statistical analysis was performed by using SPSS 13.0 for Windows. A summary of data is presented as mean ± sd (median, minimum and maximum).

Results

There were 36 (55.4%) males and 29 (44.6%) females in the patient group and 41 (64.1%) males and 23 (35.9%) females in the control group. The mean ages of the patient and control groups were 45.17 ± 14.1 and 44.92 ± 14.2, respectively. There was no significant difference between the groups in terms of gender ($x^2 = 0.681$, $p = 0.409$). Leptin levels were significantly correlated with BMI in both groups ($r = 0.585$, $p = 0.0001$ in patient group; $r = 0.417$, $p = 0.0001$ in control group; $r = 0.518$, $p = 0.0001$ for the whole group).
Leptin levels of female patients with psoriasis were significantly higher than control females. However, there was no significant difference between the diseased and control males *(table 1, figure 1)*. Leptin levels were also significantly different between females and males in patient ($p = 0.001$) and control groups ($p = 0.026$). The difference was more significant for the patient group. There was no significant difference in leptin levels of patients with a positive and negative family history, age of onset (below and above 40), patients with different clinical types and activity of the disease. Meaningful correlations were not found between leptin levels and duration of the disease ($r = -0.041$, $p = 0.746$), and PASI score ($r = 0.115$ and $p = 0.361$).
Leptin levels were not different between patients having GG, GA and AA genotypes ($p = 0.424$). Male patients with psoriasis did not show a significant difference in leptin levels based on the coding alleles ($p = 0.915$). Although female patients with the AA genotype had lower levels of leptin, the difference was not statistically significant ($p = 0.322$).

Discussion

Apart from the role of leptin in weight control and immune modulation, increasing evidence suggests a role in some immunologically mediated pathophysiological conditions [1]. Although there is no study investigating serum leptin levels in psoriasis, it has been investigated in diseases in which a Th1 type of immune response plays an important role. Increased levels have been reported in active Behcet's disease [2].
Correlation of serum leptin levels and G2548A polymorphism was investigated and subjects with an AA genotype were found to have significantly higher levels

Table 1. Serum leptin levels and BMI according to genders in patient and control groups.

	Mean leptin levels (med; min; max)	Significance	BMI (mean) (med; min; max)	Significance
Female patients	39.07 ± 30.88 (30.5; 1.3; 111.7)	P = 0.006	29.41 ± 7.28 (29; 17.58; 52.48)	P = 0.191
Female controls	18.28 ± 18.57 (10.4; 0; 61.5)		27.25 ± 6.01 (25.97; 18.82; 44.53)	
Male patients	7.19 ± 12.64 (4.95; –3.6; 55.2)	P = 0.417	27.08 ± 4.51 (26.91; 18.67; 37.18)	P = 0.931
Male controls	7.42 ± 9.29 (4.2; –3.9; 33.5)		27.41 ± 4.31 (26.57; 20.24; 41.91)	

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